

We claim:

1. An apparatus for the in-line production of flexographic printing plates by means of digital imaging, at least comprising
 - (A) a unit for holding digitally imageable, photopolymerizable, flexographic printing elements,
 - (B) a unit for the digital imaging of the flexographic printing element, which comprises at least two functional units of the same type,
 - (C) an exposure unit,
 - (D) a washout unit,
 - (E) a drying unit,
 - (F) optionally an aftertreatment unit,
 - (G) an output unit for the flexographic printing plates obtained, and
 - (H) transport units for the flexographic printing elements or plates, which connect the units (A) to (G) to one another,
- 15 the units (A) to (H) being designed so that the flexographic printing elements or plates are processed in the flat state.
2. An apparatus as claimed in claim 1, wherein the transport units comprise magnetic retaining apparatuses.
3. An apparatus as claimed in claim 1 or 2, which furthermore comprises a unit for preexposure of the photosensitive flexographic printing elements.
- 20 4. An apparatus as claimed in any of claims 1 to 3, wherein the functional units for digital imaging comprise IR lasers.
5. An apparatus as claimed in any of claims 1 to 3, wherein the functional units for digital imaging comprise inkjet printing heads.
- 25 6. An apparatus as claimed in any of claims 1 to 3, wherein the functional units for digital imaging comprise thermal printing heads.

7. The use of an apparatus as claimed in any of claims 1 to 6 for the production of flexographic printing plates.
8. A process for the production of flexographic printing plates for newspaper printing, in which the starting material used is a photosensitive flexographic printing element
- 5 comprising – arranged one on top of the other – at least

- a flexible, metallic substrate,
- a photopolymerizable layer which in turn comprises at least one elastomeric binder, ethylenically unsaturated monomers and a photoinitiator, and
- a digitally imageable layer,

10 wherein an apparatus as claimed in any of claims 1 to 6 is used and the process comprises the following steps:

- (a) placing of the photosensitive flexographic elements in the holding unit (A),
- (b) imagewise recording on the digitally imageable layer by means of the imaging unit (B) for producing a mask on the flexographic printing element,
- 15 (c) exposure of the flexographic printing element to actinic light by means of the exposure unit (C) through the mask produced,
- (d) removal of unexposed parts of the flexographic printing element and the residues of the digitally imageable layer by means of a suitable solvent or of a suitable solvent combination in the washout unit (D),
- 20 (e) drying of the washed out flexographic printing plate at from 105 to 160°C in the drying unit (E),
- (f) optionally aftertreatment of the dried flexographic printing plate by means of UVA and/or UVC light and
- (g) output of the finished flexographic printing plate,

25 the flexographic printing element or the flexographic printing plate being transported by the transport means (H) from one unit to the respective next unit and not being bent during the entire processing procedure.

9. A process as claimed in claim 8, wherein the digitally imageable layer is a layer selected from the group consisting of the IR-ablative layers, inkjet layers and thermographic layers.
10. A process as claimed in claim 8 or 9, wherein the flexographic printing element is
5 furthermore preexposed to actinic light in a step preceding (b), with the proviso that a flexographic printing element whose digitally imageable layer has a sufficient transparency to actinic light is used.
11. A process as claimed in any of claims 8 to 10, wherein the metallic substrate comprises magnetizable spring steel.
- 10 12. A process as claimed in any of claims 8 to 11, wherein the flexographic printing element has a thickness of from 0.4 to 1 mm.
13. A process as claimed in any of claims 8 to 12, wherein the binder in the photopolymerizable layer is at least one styrene/butadiene block copolymer having a styrene content of from 20 to 50% by weight.
- 15 14. A process as claimed in claim 13, wherein the block copolymer has an average molecular weight M_w of from 80 000 to 150 000 g/mol.
15. A process as claimed in claim 13 or 14, wherein the styrene/butadiene block copolymer has a Shore A hardness of from 55 to 75.
16. A process as claimed in any of claims 13 to 15, wherein the photopolymerizable layer
20 furthermore comprises from 5 to 50% by weight of a plasticizer.